



Texas Interoperability Channel Plan

For FCC Designated Public Safety Interoperability Channels 150 MHz – 800 MHz

Developed By
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Channel Band

150 MHz Wideband

150 & 450 MHz Narrowband

700MHz

800 MHz

Texas Interoperability Channel Plan

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1. INTRODUCTION

This Channel Plan describes conditions and guidelines for use of state-licensed interoperability or mutual-aid radio channels by:

- Local government jurisdictions and their associated emergency response agencies
- Federal agency offices in Texas and their associated emergency response organizations
- Private emergency response organizations licensed or eligible to operate in the Public Safety Pool as defined in Part 90 of the FCC Rules (47CFR subpart B paragraphs 90.15-90.20). See <http://wireless.fcc.gov/publicsafety/pspool.html> for further information on FCC public safety radio pool eligibility.

Texas Department of Public Safety holds licenses for all interoperability channels. The licenses provide for:

- Operation of VHF, UHF, 700 MHz, and 800 MHz radio equipment on interoperability or mutual aid channels
- Operation of mobile, portable, and temporary base radios only. Fixed-base stations, such as dispatch points, PSAPs, etc., must be separately licensed by the jurisdiction, agency, or private emergency response organization.

By executing the Memorandum of Understanding (MOU) associated with this *Texas Interoperability Channel Plan*, public safety entities may operate under existing Texas Department of Public Safety (TxDPS) state licenses:

<u>Channel Band</u>	<u>FCC License</u>
150 MHz Wideband	WPY1930
150 & 450 MHz Narrowband	WQBC290
700MHz	WPTZ776
800 MHz NPSAC	WPGV57

2. GENERAL CONDITIONS FOR USE OF STATE-LICENSED INTEROPERABILITY CHANNELS

By executing the MOU associated with this *Texas Interoperability Channel Plan*, signatories agree to abide by the following general conditions:

Operational

- Interoperability calling channel and tactical channels should be programmed into all mobile, portable, and temporary base radios operated by signatory agencies and organizations. At a minimum, the channels should be programmed into all radios that can reasonably be expected to be operated by agency or organization leadership (officers, incident commanders, etc.)

- Use of the interoperability channels shall be limited to their designated purpose of coordination between emergency response agencies and resources. Such coordination may occur during routine operations, en-route travel, or on-incident.
- The interoperability channels should not be used for routine dispatch operations, but may be used for routine and en-route communications in accordance with local and regional policies and procedures.
- Use of the interoperability channels shall be prioritized:
 1. Emergency or urgent operation involving imminent danger to life or property
 2. Disaster or extreme emergency operation requiring extensive interoperability and inter-agency communications
 3. Special event, generally of a pre-planned nature
 4. Joint training exercises
 5. Inter-agency and en-route communications in accordance with local and regional policies and procedures.
- Use of the interoperability channels for on-incident communications shall be in accordance with an Incident Communications Plan established by the on-scene incident commander. The controlling agency for an incident shall, through its incident commander, assign and/or reassign interoperability channels for each operational period as required to support incident operations.
- Radio communications procedures consistent with the National Incident Management System (NIMS) and Incident Command System (ICS) shall be implemented, including:
 - Use "plain language" without 10-codes or agency-specific codes/jargon
 - Use the calling order, "Agency-Unit #, this is Agency-Unit #" calling order, rather than "Unit # to Unit #"
 - ... Example: "Bryan 1605 this is Tyler 2102" or "Incident Command this is DPS 505"
- Interoperability channels shall be used only for voice traffic. Paging, DTMF signaling and SCADA operations are not permitted on interoperability calling or tactical channels. The transmitters and/or receivers in temporary base stations and repeaters/mobile relays shall not be enabled, disabled or muted by any over-the-air signaling device (selective or DTMF signaling, etc).
- To alleviate confusion, the standard channel names listed in this plan should be used in all equipment to refer to individual channels. Radios not capable of displaying alphanumeric channel labels should be placarded to indicate the channel names and their corresponding positions on the radio's channel selector switch.
- All mobile and portable radio equipment should employ a time-out timer set to limit transmission duration to a period of no greater than 120 seconds (2 minute).
- User-initiated telephone interconnect, e.g. phone patch, on the interoperability channels is not permitted.

Co-Channel and Adjacent Channel Interference

The statewide interoperability channels and CTCSS tones are designated statewide under this plan and thus co-channel interference is possible. Given adequate geographic separation, coordinated

co-channel operations at separate incidents and venues may be conducted if effective radiated power is limited to the minimum level required to maintain reliable communications at each incident.

Because FCC frequency re-farming has established new narrowband channels adjacent to existing wideband channels, interference from properly licensed adjacent channel users is possible. If interference to the interoperability channels from licensed users (who are signatory to this plan) occurs during an incident, those users should consider their communications to be secondary to emergency interoperability traffic on the interoperability channels.

On-channel and adjacent channel interference issues during an incident or event must be resolved by the incident commander. The Texas Department of Public Safety, RF Unit, should be immediately notified of interference to the interoperability channels in order to assist in resolution of the problem.

Calling Channels

Initial radio contact during travel to or arrival at an emergency incident may be established on an appropriate interoperability calling channel.

- Calling channel communications shall use non-encrypted analog FM emissions, with the widest allowable bandwidth per current FCC regulations. Exception: 700 MHz calling channel must utilize Project 25 Phase 1 Common Air Interface (CAI).
- If a region, or an adjacent region, has wideband VHF users, Texas Law 2 should be continually monitored by appropriate dispatch points within the affected regions until those users substantially complete conversion to either narrowband VHF or another channel band. At a time to be identified in the regional interoperability plan, Texas Law 2 monitoring should be augmented by or converted to the narrowband VHF channel VCALL. Note the conversion date of January 1, 2008 identified in the MOU associated with this channel plan.
- If a region, or an adjacent region, has wideband UHF users, a regionally identified wideband UHF channel should be continually monitored by appropriate dispatch points within the affected regions until those users substantially complete conversion to either narrowband UHF or another channel band. These wideband UHF channels must be licensed separately and are not covered by this plan. At a time to be identified in the regional interoperability plan, wideband UHF monitoring should be augmented by or converted to the narrowband UHF channel UCALL.
- If a region, or an adjacent region, has jurisdictions that use or plan on using 700 MHz equipment, the channel 7CAL59 should be continually monitored by appropriate dispatch points within the affected regions when those users are substantially converted to 700 MHz. At a time to be identified in the regional interoperability plan, any existing interoperability channel monitoring should be augmented by or converted to the channel 7CAL59 within the affected regions.
- If a region, or an adjacent region, has 800 MHz users, the 800 MHz channel 8CALL should be continually monitored by appropriate dispatch points within the affected regions.

Monitoring of VHF wideband channel Texas Law 2 (formerly known as "Intercity") is wide-spread throughout the state. Monitoring of the 800 MHz NPSPA channels is common in the metro areas as well. The TSIEC suggests that regional interoperable communication plans recognize and address the monitoring capabilities that will be needed within their jurisdictions in order to assure interoperability among public safety users. For some regions, monitoring VHF and 800 MHz calling channels may be adequate. Other regions may need to monitor additional interoperability channels in order to assure that interoperability is achieved.

CTCSS and NAC Coded Squelch

Continuous Tone Coded Squelch (CTCSS) or Network Access Codes (NAC) shall be used on the interoperability calling and tactical channels to mask interference, in accordance with the tables below. Only the CTCSS tones and NAC Codes identified in this channel plan are allowed on the interoperability channels within the state. These tones and codes shall not be changed nor others added by the individual agency, the agency's communications vendor or any maintenance or service provider.

Responding agencies from outside of Texas, and some in-state agencies with legacy equipment, may not have the CTCSS transmit tones installed on VHF wideband interoperability channels. For this reason, all mobile, portable, and temporary base radio receivers should be capable of "monitor" mode operation.

Modulation and Encryption

Analog modulation is mandatory on all interoperability calling channels to facilitate interoperability with legacy radio equipment in the field. Exception: communications on all 700 MHz interoperability channels must be P25 Phase 1 CAI digital modulation.

For most situations, analog modulation is preferred on tactical interoperability channels in all bands except 700 MHz. For occasional pre-planned events, non-encrypted digital modulation is authorized on tactical interoperability channels in all bands.

When used, digital modulation for interoperability channels shall be P-25 Phase 1 CAI compliant and shall use the following criteria:

- Network access code shall be \$61F for all interoperability channels
- Talkgroup ID of \$0001
- Manufacturer's ID of \$00
- Message ID of \$00000000000000000000 for open messages

For occasional pre-planned events where communications security is an issue, encrypted P-25 Phase 1 CAI modes are authorized on tactical channels. Specific encryption algorithms and encryption keys shall be as defined by the event incident commander, and shall conform to the Texas Interoperability Encryption Plan (TIEP), under separate cover.

Temporary Base and Repeater/Mobile Relay Stations

Temporary base stations and repeater/mobile relay stations are permitted by the MOU associated with this channel plan, with the following conditions or restrictions:

- Temporary base stations and temporary repeater/mobile relays that are deployed and operating at an incident under interoperability conditions, may employ as much elevation and Effective Radiated Power (ERP) as necessary to successfully support the incident. However, Elevation and ERP should not exceed FCC licensed limitations (see Appendix A for reference copies of state FCC licenses). Suggested on-scene parameters for temporary base or repeater/mobile relay stations are:
 - Temporary base and repeater stations should be limited to a maximum transmit antenna height of 15.2m (50 ft), and maximum antenna gain of 3.0 dBd
 - Transmit power shall not to exceed 50 watts when measured at the base of the antenna (ERP ≤ 100 W).

- Temporary base and repeater/mobile relay stations shall not be left in permanent operation and must be disabled upon conclusion of an incident or exercise.
- Temporary base stations and repeater/mobile relay stations should incorporate automatic station identification, using the call sign identified in paragraph A above, per FCC Part 90 of the FCC rules.
- Temporary base and repeater/mobile relay stations shall have a time out timer limiting transmit duration to no greater than 120 seconds (2 minutes).
- Temporary base and repeater/mobile relay stations when operating in the repeater mode shall be configured to immediately drop transmit carrier upon cessation of input signal (no squelch tail). Reasonable squelch hang time for weak received signals or signals that have achieved a critical bit error rate (BER) is permitted. Prolonged "hang time", greater than 500 ms is not permitted.
- End-of-transmission "courtesy tones" or "beeps" are not allowed on any interoperability channel.

Fixed Base and Repeater/Mobile Relay Stations

For consistency with this plan, separately licensed fixed base and mobile relay stations should conform to the following:

- Fixed base and repeater/mobile relay stations should be part of and incorporated into local, county, regional and state emergency operations plans.
- Fixed base and repeater/mobile relay stations should provide balanced coverage, i.e., talk-out and talk-back coverage should be approximately equal.
- Fixed base or repeater/mobile relay stations on interoperability channels should not be used for primary or secondary dispatch operations by the licensee.
- Fixed base stations and repeater/mobile relay stations should incorporate automatic station identification per FCC Part 90 of the FCC rules.
- All fixed base and repeater/mobile relay stations should have a time out timer limiting transmit duration to no greater than 120 seconds (2 minutes).

3. SPECIFIC GUIDELINES -- VHF 150 MHz Wideband Channels

For wideband VHF interoperability, the 8 (eight) channels described below will be used. All of these channels are simplex and are not to be used in a repeater or mobile relay configuration other than in conjunction with a temporary patch or temporary gateway connection. Note the following:

- The VHF wideband interoperability channels were initially licensed by many agencies for routine public safety operations. As such, these channels are being used for day-to-day operations throughout the state and are therefore available only on a shared basis with existing license holders. Localized, non-emergency traffic has traditionally taken place on Texas Law 1 and Texas Law 2. Local agency licensees are strongly encouraged to keep such traffic to a minimum and to curtail that activity during ongoing incidents.
- The channels Texas Law 1 and Texas Law 2 are hereby designated as multi-discipline, multi-agency public safety interoperability channels for all public safety agencies and other signatories to the MOU associated with this channel plan. Texas Law 1 and Texas Law 2 should not be used for routine day-to-day dispatch operations.

- Texas Law 1 is hereby designated as the primary on-incident calling and coordination channel for mobile and portable units. Note that mobile and portable units will hear nearby transmissions directed to dispatch centers on Texas Law 2 but will not hear dispatch center responses.
- Texas Law 2 is hereby designated as the primary transient/en-route calling channel for interoperable VHF wideband channel communications between mobile/portable units, fixed and/or temporary base and repeater (mobile relay) stations. Note: the Texas Law 2 channel is no longer designated as an "Intercity" channel.
- During an incident, the on-incident commander may or may not be within range of a Texas Law 2 fixed or temporary base station. Should this occur, the on-incident commander's radio should have the capability of operating like a temporary Texas Law 2 base station. This requires putting a "TL2A Base" channel into the radios of those officers who could potentially be required to act as an incident commander. This channel would be configured like a Texas Law 2 base station, transmitting on Texas Law 2 and receiving on Texas Law 1 (CTCSS decode, 127.3 Hz).
- Texas Law 3 is designated as a tactical frequency primarily for law enforcement-related incidents/events, but can be used as determined by the incident commander for any discipline.
- Texas Fire 1, 2 and 3 are designated as tactical or command frequencies primarily for fire agencies, but can be used as determined by the incident commander for any discipline.
- Texas Med 1 is designated as a tactical or command frequency primarily for medical agencies, but can be used as determined by the incident commander for any discipline.
- Texas Air 2 is designated for Ground-to-Air communications with State and Federal Aircraft ONLY that may be assigned to an incident or event. It is to be used only with state and federal aircraft and is not designated for use with local aircraft, including local EMS aircraft. Other frequencies associated with the VHF wideband frequencies can be used with local EMS aircraft, such as Texas Law 1 or 3, Texas Fire 1-3, or Texas Med 1.
- Some of the VHF wideband interoperable frequencies are in use across the state as primary channels for many agencies. Therefore, the channels should be monitored before assigning them for use on an incident or event to avoid interference with local agencies.
- Gateways, patching or cross-band repeating of VHF wideband calling channels to calling channels in other bands is not permitted. Patching to/between interoperability tactical channels is permitted during incidents or events involving interagency personnel if so directed by the incident commander.

Figure 1

**VHF 150 MHz Wideband Interoperability Channels
(Mobile and Portable Configuration)**

Receive	Transmit	CTCSS	Label	Use
154.950	154.950	Carrier Squelch ONLY	Texas Law 1	Calling channel, on-site, mobile to mobile
155.370	154.950	127.3 TX only	Texas Law 2	Calling channel, to contact base stations
155.475	155.475	127.3 TX & RX	Texas Law 3	On-scene tactical - command channel
154.280	154.280	127.3 TX & RX	Texas Fire 1	On-scene tactical - command channel
154.265	154.265	127.3 TX & RX	Texas Fire 2	On-scene tactical - command channel
154.295	154.295	127.3 TX & RX	Texas Fire 3	On-scene tactical - command channel
155.340	155.340	127.3 TX & RX	Texas Med 1	On-scene tactical - command channel
151.385	151.385	127.3 TX & RX	Texas Air 2	Air-to-Ground communications with state and federal aircraft ONLY *

*Texas Air 1 is reserved and not available for use in this plan

This channel plan establishes specific labels for VHF wideband channels to assure consistent use throughout the state. These labels are listed below and all participating agencies should use these labels if possible. Alphanumeric radio displays should be consistent with the examples listed below depending on each radio's capability. Any reference to previous identifiers (for example "Intercity") should be removed from the radio display.

- 3-Digit – TL1 / TF1 / TM1 / TA2
- 6-Digit – TEX L1 / TEX F1 / TEX M1 / TEX A2
- 8-Digit – TEX LAW1 / TEXFIRE1 / TEX MED1 / TEX AIR2
- 10-Digit – TEXAS LAW1 / TEXAS FIRE1 / TEXAS MED1 / TEXAS AIR2

4. SPECIFIC GUIDELINES – VHF 150 MHz Narrowband Channels

For narrowband VHF interoperability, the five narrowband channels described in Figure 2 below will be used. All of these channels are simplex and are not to be used in a repeater or mobile relay configuration other than in conjunction with a temporary patch or temporary gateway connection. Note the following:

- Narrowband VHF interoperability channels are identified by the FCC for interoperability use within Texas. Some of these interoperable channels may already be licensed by local agencies throughout the state for interoperability use.
- The channel VCALL is designated as a multi-discipline, multi-agency public safety interoperability calling channel for all public safety agencies and other signatories to the MOU associated with this channel plan. The channel is designated for interoperable VHF narrowband communications between mobile/portable radios and base stations, temporary base stations and on-incident incident commander.
- The tactical channels VTAC1 – VTAC4 should be assigned on-incident by the incident commander.

- Gateways, patching or cross-band repeating of VHF narrowband calling channels to calling channels in other bands is not permitted. Patching to/between interoperability tactical channels is permitted during emergency situations if so directed by the incident commander.

Figure 2

**VHF 150 MHz Narrowband Interoperability Channels (12.5 kHz)
(Mobile and Portable Configuration)**

Receive and Transmit	NAC	CTCSS	Label	Use
155.7525	\$061F	156.7 TX & RX	VCALL	Calling Channel
151.1375	\$061F	156.7 TX & RX	VTAC1	On-scene tactical - command channel
154.4525	\$061F	156.7 TX & RX	VTAC2	On-scene tactical - command channel
158.7375	\$061F	156.7 TX & RX	VTAC3	On-scene tactical - command channel
159.4725	\$061F	156.7 TX & RX	VTAC4	On-scene tactical - command channel *

* recommended for air-to-ground with state and federal aircraft only.

This channel plan establishes specific labels for VHF narrowband channels to assure consistency throughout the state. These labels are listed below and all participating agencies should use these labels if possible. Alphanumeric radio displays should be consistent with the examples listed below depending on each radio's capability.

3- Digit – VCL, VT1, VT2, VT3, VT4

5+ Digit – VCALL, VTAC1, VTAC2, VTAC3, VTAC4

5. SPECIFIC GUIDELINES -- UHF 450 MHz Wideband Channels

Wideband UHF interoperability channels present challenges to the state. The FCC has not identified specific UHF wideband channels for use in interoperability situations. Although a substantial amount of UHF radio equipment is being used throughout the state, in many cases these UHF users are geographically dispersed. Many EMS responders utilize UHF wideband equipment to communicate with hospitals and this equipment should be accounted for in regional interoperability solutions. Some public safety agencies using UHF equipment have deployable systems to provide an interface with other users and for on-incident commanders.

Regionally based interoperability solutions must consider how to incorporate wideband UHF users into their respective regional interoperability plans. The General Conditions in section B of this MOU should be included in such plans. If a deployable UHF gateway or a console patch is used with the interoperability channels identified in this MOU, this interconnected equipment should conform to the Conditions and Guidelines set out in this MOU.

6. SPECIFIC GUIDELINES -- UHF 450 MHz Narrowband Channels

For narrowband UHF interoperability, the four narrowband repeater channels (with direct) described in Figure 3 below will be used. Note the following:

- Narrowband UHF interoperability channels are identified by the FCC for interoperability use within Texas. Some of these interoperable channels may already be licensed by multiple agencies for interoperability use throughout the state.

- The channels UCALL and UCALLD are designated as multi-discipline, multi-agency public safety interoperability calling channels for all public safety agencies and other signatories to the MOU associated with this channel plan.
- The UCALL channels are designated for interoperable UHF narrowband communications between mobile/portable radios and base stations, temporary base stations and incident commander.
- The tactical repeater channels UTAC1 – UTAC3 and talk-around channels UTAC1D-UTAC3D should be assigned by the incident commander.
- This channel plan establishes specific labels for UHF narrowband channels to assure consistency throughout the state. These labels are listed in the Figure 3 and all participating agencies should use these labels.

Figure 3
UHF Narrowband Interoperability Channels (12.5 kHz)
(Mobile and Portable Configuration)

Receive	Transmit	NAC	CTCSS	Direct Label	Repeater Label	Use
453.2125	458.2125	\$061F	156.7 TX & RX		UCALL	Calling Channel (repeater)
453.2125	453.2125	\$061F	156.7 TX & RX	UCALLD		Calling Channel (direct)
453.4625	458.4625	\$061F	156.7 TX & RX		UTAC1	Tactical - Command Channel (repeater)
453.4625	453.4625	\$061F	156.7 TX & RX	UTAC1D		Tactical - Command Channel (direct)
453.7125	458.7125	\$061F	156.7 TX & RX		UTAC2	Tactical - Command Channel (repeater)
453.7125	453.7125	\$061F	156.7 TX & RX	UTAC2D		Tactical - Command Channel (direct)
453.8625	458.8625	\$061F	156.7 TX & RX		UTAC3	Tactical - Command Channel (repeater)
453.8625	453.8625	\$061F	156.7 TX & RX	UTAC3D		Tactical - Command Channel (direct)

- Gateways, patching or cross-band repeating of UHF narrowband calling channels to calling channels in other bands is not permitted. Patching to/between interoperability tactical channels is permitted during emergency situations if so directed by the incident commander.
- This channel plan establishes specific labels for UHF narrowband channels to assure consistency throughout the state. These labels are listed below and all participating agencies should use these labels if possible. Alphanumeric radio displays should be consistent with the examples listed below depending on each radio's capability.

6+ Digit – UCALL, UTAC1, UTAC2, UTAC3, UCALLD, UTAC1D, UTAC2D, UTAC3D

7. SPECIFIC GUIDELINES -- 700 MHz Channels

For narrowband 700 MHz interoperability, the eight narrowband repeater channels (with direct) described in Figure 4 below will be used. Note the following:

- Narrowband 700 MHz interoperability channels are identified by the FCC for interoperability use within Texas. Some of these interoperable channels may already be licensed by multiple agencies for interoperability use throughout the state.
- The channels 7CAL59, 7CAL59D are designated as the primary calling channels and 7CAL75, 7CAL75D are designated as the secondary calling channels. All 700 MHz interoperability channels are to be used as multi-discipline, multi-agency public safety interoperability calling channels for all public safety agencies and other signatories to the MOU associated with this channel plan. These channels are designated for interoperable 700 MHz narrowband communications between mobile/portable radios and base stations, temporary base stations and on-incident incident commander.
- The tactical repeater channels and direct channels identified in Figure 4 should be assigned on-incident by the incident commander.
- Gateways, patching or cross-band repeating of 700 MHz calling channels to calling channels in other bands is not permitted. Patching to/between interoperability tactical channels is permitted during emergency situations if so directed by the incident commander.
- Wide implementation of 700 MHz radio systems is not anticipated until approximately 2007 (Some equipment is presently capable of 700/800 MHz operation). Users of this channel plan should anticipate development of additional guidance prior to that time.
- This channel plan establishes specific labels for 700 MHz narrowband channels to assure consistency throughout the state and nation. These labels are listed in the Figure 4 and all participating agencies should use these labels.

Figure 4
700 MHz Interoperability Channels (12.5 kHz)
(Mobile and Portable Configuration)

Receive	Transmit	NAC	Direct Label	Repeater Label	Use
794.240625	764.240625	\$061F		7CAL59	Calling Channel , primary (repeater)
794.240625	794.240625	\$061F	7CAL59D		Calling Channel, primary (direct)
804.253125	774.253125	\$061F		7CAL75	Calling Channel , secondary repeater)
804.253125	804.253125	\$061F	7CAL75D		Calling Channel, secondary (direct)
794.740625	764.740625	\$061F		7TAC63	Tactical - Command Channel (repeater)
794.740625	794.740625	\$061F	7TAC63D		Tactical - Command Channel (direct)
795.890625	765.890625	\$061F		7MOB72	Tactical - Command Channel (repeater)
795.890625	795.890625	\$061F	7MOB72D		Tactical - Command Channel (direct)
795.990625	765.990625	\$061F		7TAC73	Tactical - Command Channel (repeater)
795.990625	795.990625	\$061F	7TAC73D		Tactical - Command Channel (direct)
Receive	Transmit	NAC	Direct Label	Repeater Label	Use

804.753125	774.753125	\$061F		7TAC79	Tactical - Command Channel (repeater)
804.753125	804.753125	\$061F	7TAC79D		Tactical - Command Channel (direct)
805.503125	775.503125	\$061F		7MOB88	Tactical - Command Channel (repeater)
805.503125	805.503125	\$061F	7MOB88D		Tactical - Command Channel (direct)
794.240625	764.240625	\$061F		7TAC89	Tactical - Command Channel (repeater)
794.240625	794.240625	\$061F	7TAC89D		Tactical - Command Channel (direct)

8. SPECIFIC GUIDELINES -- 800 MHz Channels

For 800 MHz interoperability, the five repeater channels (with direct) described in Figure 5 below will be used. Note the following:

- 800 MHz interoperability channels are identified by the FCC for interoperability use within Texas. Some of these interoperable channels may already be licensed by multiple agencies for interoperability use throughout the state.
- The channels 8CALL and 8CALLD are designated as multi-discipline, multi-agency public safety interoperability calling channels for all public safety agencies and other signatories to the MOU associated with this channel plan. These channels are designated for interoperable 800 MHz communications between mobile/portable radios and base stations, temporary base stations and on-incident incident commander.
- The tactical repeater channels 8TAC1 - 8TAC4 and talk-around channels 8TAC1D - 8TAC3D should be assigned on-incident by the incident commander.
- Gateways, patching or cross-band repeating of 800 calling channels to calling channels in other bands is not permitted. Patching to/between interoperability tactical channels is permitted during emergency situations if so directed by the incident commander.
- Implementation of 800 MHz Interoperability channels is complicated by imminent rearming of the NSPAC channels by FCC. Users of this channel plan should anticipate development of additional guidance during 2005. Questions may be addressed to the TSIEC at 512-424-5307.

804.753125	774.753125	\$061F		7TAC79	Tactical - Command Channel (repeater)
804.753125	804.753125	\$061F	7TAC79D		Tactical - Command Channel (direct)
805.503125	775.503125	\$061F		7MOB88	Tactical - Command Channel (repeater)
805.503125	805.503125	\$061F	7MOB88D		Tactical - Command Channel (direct)
794.240625	764.240625	\$061F		7TAC89	Tactical - Command Channel (repeater)
794.240625	794.240625	\$061F	7TAC89D		Tactical - Command Channel (direct)

Figure 5

**800 NPSPAC Interoperability Channels (25 kHz)*
(Mobile and Portable Configuration)**

Receive	Transmit	NAC	CTCSS	Direct Label	Repeater Label	Use
866.0125	821.0125	\$061F	156.7 TX & RX		8CALL	Calling Channel (repeater)
866.0125	866.0125	\$061F	156.7 TX & RX	8CALLD		Calling Channel (direct)
866.5125	821.5125	\$061F	156.7 TX & RX		8TAC1	Tactical - Command Channel (repeater)
866.5125	866.5125	\$061F	156.7 TX & RX	8TAC1D		Tactical - Command Channel (direct)
867.0125	822.0125	\$061F	156.7 TX & RX		8TAC2	Tactical - Command Channel (repeater)
867.0125	867.0125	\$061F	156.7 TX & RX	8TAC2D		Tactical - Command Channel (direct)
867.5125	822.5125	\$061F	156.7 TX & RX		8TAC3	Tactical - Command Channel (repeater)
867.5125	867.5125	\$061F	156.7 TX & RX	8TAC3D		Tactical - Command Channel (direct)
868.0125	823.0125	\$061F	156.7 TX & RX		8TAC4	Tactical - Command Channel (repeater)
868.0125	868.0125	\$061F	156.7 TX & RX	8TAC4D		Tactical - Command Channel (direct)

*in the future 800 MHz channels will be relocated 15 MHz lower under FCC order

This channel plan establishes specific labels for 800 MHz channels to assure consistency throughout the state and nation. These labels are listed in the Figure 5 and all participating agencies should use these labels.

9. SPECIFIC GUIDELINES – INTEROPERABILITY CROSS-BAND SYSTEMS

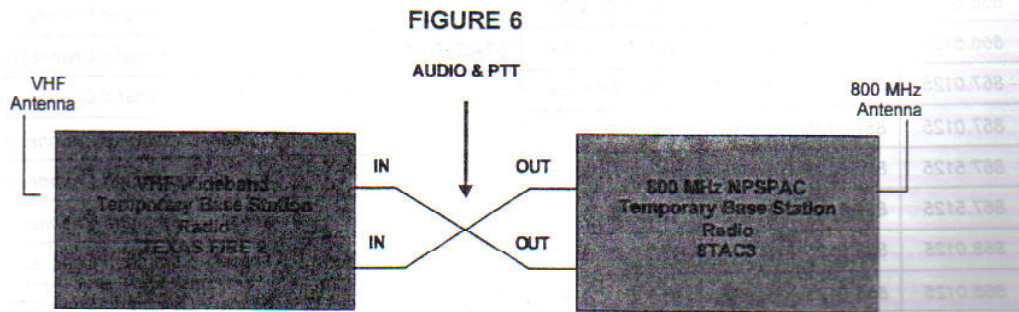
Cross-band interconnection between radio equipments operating under state-licensed channels is authorized with three conditions:

- Cross-band operation is authorized as may be required to interconnect channels identified in this channel plan, and interconnect to other channels that may be required on a particular incident. On incidents, tactical channels and other local channels may be interconnected at the direction of the incident commander.
- Cross-band operation should conform to planning requirements, as established in a Regional Interoperability Plan, typically produced by a regional Council of Governments.
- 800-Mhz NPSPAC (conventional) channels may be cross-banded with other interoperability channels. 800-Mhz trunked channels should not be used in cross-band interconnections because of unpredictable PTT delay.

Cross-band interconnections can be implemented in several ways:

Simple Cross-band Repeater

This approach interconnects two radios "back-to-back" such that received signals on either receiver are re-transmitted by the other transmitter.



Simple Cross-Band Repeater

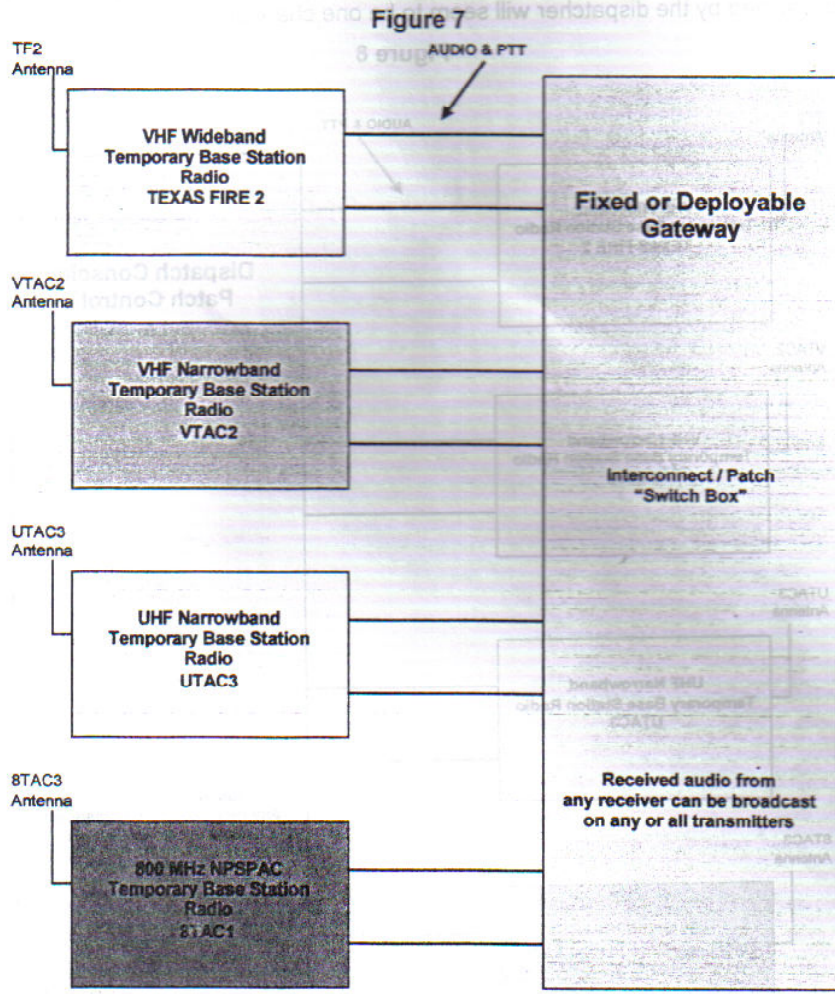
Operationally, the two channels selected will seem to be one channel, as long as all radio users are within the coverage "footprint" of the cross-band repeater and antennas. Some push-to-talk (PTT) delay should be expected.

In this example, two tactical channels are interconnected to enable tactical communications between resources equipped with differing equipments.

Mobile Tactical Interconnect or Radio Interoperability Gateway

This approach interconnects several radios "back-to-back" such that received signals on any receiver are re-transmitted by all selected transmitters.

Operationally, all channels selected will seem to be one channel, as long as all radio users are within the coverage "footprint" of the antennas being used. Some push-to-talk (PTT) delay should be expected. In this example, several tactical channels are interconnected to enable tactical communications between resources equipped with differing equipment.

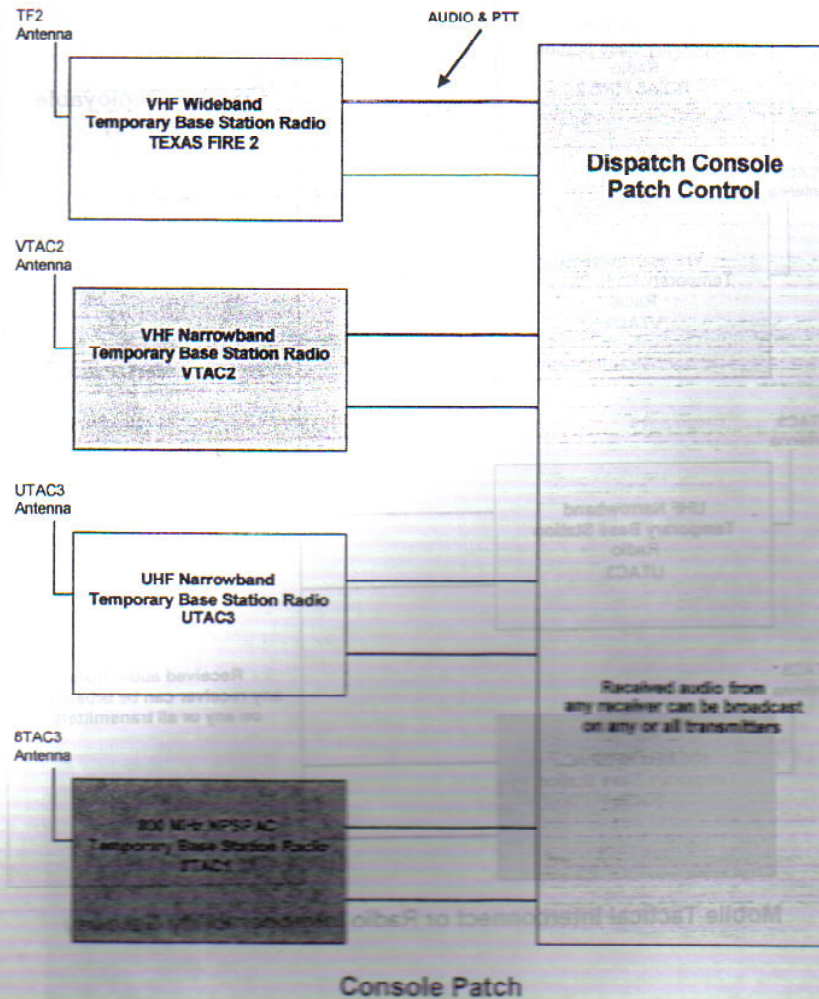


Mobile Tactical Interconnect or Radio Interoperability Gateway

Dispatch Console Patching

Console patching utilizes dispatch point base radios and the patching capability of a common console system to accomplish the same interconnections described above. However, in the case of console patching, all radio users must be within the coverage "footprint" of the base station antenna at the dispatch point. Some push-to-talk (PTT) delay should be expected. Operationally, all channels patched by the dispatcher will seem to be one channel.

Figure 8



Note that console patching at fixed-site base stations is not authorized under state licenses for interoperability channels. Such installations must be separately licensed.

Appendix A State Licenses for Interoperability Channels

Federal Communications Commission
Wireless Telecommunications Bureau
RADIO STATION AUTHORIZATION



License No. **0-07-1002**
 Issue Date **04-02-2012**
 Expiration Date **04-02-2012**

Station Technical Specifications	Effective Date	Expiration Date
	0-07-1002	04-02-2012

Address of Mobile Area of Operation		Area of Operation	State
		TX	TX
		TX	TX

Loc No	Freq	Power	Mode	Class	Station	Operator	Priority
1	823.01250	100W	FM	1	823.01250	1	1
2	823.01250	100W	FM	1	823.01250	1	1
3	823.01250	100W	FM	1	823.01250	1	1
4	823.01250	100W	FM	1	823.01250	1	1
5	823.01250	100W	FM	1	823.01250	1	1
6	823.01250	100W	FM	1	823.01250	1	1
7	823.01250	100W	FM	1	823.01250	1	1
8	823.01250	100W	FM	1	823.01250	1	1
9	823.01250	100W	FM	1	823.01250	1	1
10	823.01250	100W	FM	1	823.01250	1	1
11	823.01250	100W	FM	1	823.01250	1	1
12	823.01250	100W	FM	1	823.01250	1	1
13	823.01250	100W	FM	1	823.01250	1	1
14	823.01250	100W	FM	1	823.01250	1	1
15	823.01250	100W	FM	1	823.01250	1	1
16	823.01250	100W	FM	1	823.01250	1	1
17	823.01250	100W	FM	1	823.01250	1	1
18	823.01250	100W	FM	1	823.01250	1	1
19	823.01250	100W	FM	1	823.01250	1	1
20	823.01250	100W	FM	1	823.01250	1	1
21	823.01250	100W	FM	1	823.01250	1	1
22	823.01250	100W	FM	1	823.01250	1	1
23	823.01250	100W	FM	1	823.01250	1	1
24	823.01250	100W	FM	1	823.01250	1	1
25	823.01250	100W	FM	1	823.01250	1	1
26	823.01250	100W	FM	1	823.01250	1	1
27	823.01250	100W	FM	1	823.01250	1	1
28	823.01250	100W	FM	1	823.01250	1	1
29	823.01250	100W	FM	1	823.01250	1	1
30	823.01250	100W	FM	1	823.01250	1	1



Page 1 of 2
242

Federal Communications Commission
Wireless Telecommunications Bureau
RADIO STATION AUTHORIZATION

Licensee: TEXAS, STATE OF

FCC Registration
Number (FRN): 0001672419

PUBLIC SAFETY DEPT FLEET OPERATIONS
TEXAS, STATE OF
BOX 4087
AUSTIN TX 78773-0254

Call Sign WPGV572	File Number 0001996032
Radio Service GF - Public Safety Ntl Plan, 821-824/866-869 MHz, Conv.	
Regulatory Status PMRS	
Frequency Coordination Number:	

Grant Date 01-07-2005	Effective Date 01-07-2005	Expiration Date 04-05-2015	Print Date 01-07-2005
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STATION TECHNICAL SPECIFICATIONS

Fixed Location Address or Mobile Area of Operation

- Loc. 1 Area of Operation
Statewide: TX
- Loc. 2 Area of Operation
Statewide: TX

Antennas

Loc. No.	Ant. No.	Frequencies (MHz)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
1	1	821.01250	FX1T	2	0	20KDF3E	35,000	35,000			
1	1	821.51250	FX1T	2	0	20KDF3E	35,000	35,000			
1	1	822.01250	FX1T	2	0	20KDF3E	35,000	35,000			
1	1	822.51250	FX1T	2	0	20KDF3E	35,000	35,000			
1	1	823.01250	FX1T	2	0	20KDF3E	35,000	35,000			
1	1	866.01250	FB2T	2	0	20KDF3E	75,000	75,000			
1	1	866.51250	FB2T	2	0	20KDF3E	75,000	75,000			
1	1	867.01250	FB2T	2	0	20KDF3E	75,000	75,000			
1	1	867.51250	FB2T	2	0	20KDF3E	75,000	75,000			
1	1	868.01250	FB2T	2	0	20KDF3E	75,000	75,000			
2	1	821.01250	WC	100	0	20KDF3E	35,000	35,000			
2	1	821.51250	WC	100	0	20KDF3E	35,000	35,000			
2	1	822.01250	WC	100	0	20KDF3E	35,000	35,000			
2	1	822.51250	WC	100	0	20KDF3E	35,000	35,000			
2	1	823.01250	WC	100	0	20KDF3E	35,000	35,000			

Conditions:
Pursuant to Section 309(n) of the Communications Act of 1934, as amended, 47 U.S.C. Section 309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. Section 310(d). This license is subject in terms to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended. See 47 U.S.C. Section 606.

FCC 601 - LM
December 2004

Licensee Name: TEXAS, STATE OF

Call Sign: WPGV572

File Number: 0001996032

Print Date: 01-07-2005

STATION: RADIO SHOP SUPPLY
2442
172
4320-1113-0324

01-18-10	01-18-10	01-18-10
1105-10-10	1105-10-10	1105-10-10

Control Points

Control Address
Pt. No.

1 5805 N LAMAR BLVD
CITY
AUSTIN

County

State

Telephone Number
TX (512)465-2049

Additional Waivers/Conditions

Antenna structures for land, base and fixed stations authorized by the Wireless Telecommunications Bureau for operation at temporary unspecified locations may be erected without specific prior approval of the Commission where such antenna structures do not exceed a height of 60.96 meters (200 feet) above ground level; provided that the overall height of such antennas more than 6.10 meters (20 feet) above ground, including their supporting structures (whether natural formation or man-made), do not exceed any of the slope ratios set forth in Section 17.7(b). Any antenna to be erected in excess of the foregoing limitations requires prior Commission approval. Licensees seeking such approval should file application for modification of license. In addition, notification to the Federal Aviation Administration is required whenever the antenna will exceed 60.96 meters (200 feet) above the ground and whenever notification is otherwise required by Section 17.7 of the Commission's Rules. Such notification should be given by filing FAA Form 7460-1, Notice of Proposed Construction or Alteration, in duplicate, with the nearest office of the Federal Aviation Administration, which form is available from that office.



Federal Communications Commission Page 1 of 1
Wireless Telecommunications Bureau 44

Licensee: STATE OF TEXAS

FLEET OPERATIONS, RADIO SHOP SUPVR.
STATE OF TEXAS.
5710 GUADALUPE ST.
PO BOX 4087
AUSTIN TX 78773-0254

Call Sign WPTZ776	File Number 0000535863
Radio Service SL - Public Safety 700 MHz Band-State License	
Regulatory Status PMRS	

Grant Date 01-18-2002	Effective Date 01-18-2002	Expiration Date 01-18-2017	Print Date 01-22-2002
1st Build Out Date 01-01-2012		2nd Build Out Date 01-01-2017	

State License Area: TX - Texas

State License Channels: 411 State Channels 764-776/792-806 MHz

WAIVERS/CONDITIONS

In accordance with Section 90.531, only frequencies designated for direct licensing to each state (including U.S. territories, districts, and possessions) are authorized.

In accordance with Section 90.533, operation of public safety transmitters must not cause harmful interference to the reception of television broadcasts transmitted by UHF TV broadcast stations located in Mexico. Public safety base, control, and mobile transmitters must comply with the interference protection criteria in Section 90.545 for TV/DTV stations in Mexico. Public safety facilities must accept any interference that may be caused by operations of UHF television broadcast transmitters in Mexico.

RADIO STATION AUTHORIZATION

Licensee: IRWG, TEXAS DPS, STATE OF TEXAS

FCC Registration
 Number (FRN): 0001672419

ROBERT PLETCHER
 IRWG, TEXAS DPS, STATE OF TEXAS
 5805 N. LAMAR BLVD.
 PO BOX P.O. BOX 4097
 AUSTIN TX 78773

Call Sign WQBC290	File Number 0001756730
Radio Service PW - Public Safety Pool, Conventional	
Regulatory Status PMRS	
Frequency Coordination Number 31PWAP741173735	

Grant Date 09-17-2004	Effective Date 09-17-2004	Expiration Date 09-17-2014	Permit Date 09-20-2004
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STATION TECHNICAL SPECIFICATIONS

Fixed Location Address or Mobile Area of Operation

Loc. 1
 Area of Operation
 Statewide: TX

Loc. 2
 Area of Operation
 Statewide: TX

Antennas

Loc. No.	Ant. No.	Frequencies (MHZ)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
1	1	453.47500	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.70000	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.71250	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.72500	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.85000	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.86250	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.87500	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	151.13000	FBT	1	0	11K0F3E	100.000	200.000			
1	1	151.13750	FBT	1	0	11K0F3E	100.000	200.000			
1	1	151.14500	FBT	1	0	11K0F3E	100.000	200.000			
1	1	154.44500	FBT	1	0	11K0F3E	100.000	200.000			
1	1	453.20000	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.21250	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.22500	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.45000	FB2T	1	0	11K0F3E	100.000	200.000			
1	1	453.46250	FB2T	1	0	11K0F3E	100.000	200.000			

Conditions:

Pursuant to Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. Section 309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. Section 310(d). This license is subject in terms to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended. See 47 U.S.C. Section 606.

FCC 601 - LM
 January 2004

Licensee Name: TRWG, TEXAS DPS, STATE OF TEXAS

Call Sign: WQBC290

File Number: 0001756730

Print Date: 09-20-2004

1	1	155.46500	FBT	1	0	11K0F3E	100.000	200.000
1	1	159.47250	FBT	1	0	11K0F3E	100.000	200.000
1	1	154.45250	FBT	1	0	11K0F3E	100.000	200.000
1	1	155.47500	FBT	1	0	11K0F3E	100.000	200.000
1	1	155.48250	FBT	1	0	11K0F3E	100.000	200.000
1	1	155.74500	FBT	1	C	11K0F3E	100.000	200.000
1	1	155.75250	FBT	1	0	11K0F3E	100.000	200.000
1	1	155.76000	FBT	1	C	11K0F3E	100.000	200.000
1	1	155.73000	FBT	1	C	11K0F3E	100.000	200.000
1	1	155.73750	FBT	1	0	11K0F3E	100.000	200.000
1	1	155.74500	FBT	1	0	11K0F3E	100.000	200.000
1	1	155.75250	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.76000	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.73000	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.73750	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.74300	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.46500	MO	10000	0	11K0F3E	100.000	200.000
1	1	159.47250	MO	10000	0	11K0F3E	100.000	200.000
1	1	151.13000	MO	10000	0	11K0F3E	100.000	200.000
1	1	151.13750	MO	10000	0	11K0F3E	100.000	200.000
1	1	151.14500	MO	10000	0	11K0F3E	100.000	200.000
1	1	154.44500	MO	10000	0	11K0F3E	100.000	200.000
1	1	154.45250	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.47500	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.48250	MO	10000	0	11K0F3E	100.000	200.000
1	1	155.74500	MO	10000	0	11K0F3E	100.000	200.000
1	1	455.86250	MO	10000	0	11K0F3E	100.000	200.000
1	1	455.87500	MO	10000	0	11K0F3E	100.000	200.000
1	1	455.50000	MO	10000	0	11K0F3E	100.000	200.000
1	1	455.21250	MO	10000	0	11K0F3E	100.000	200.000
1	1	455.22500	MO	10000	0	11K0F3E	100.000	200.000
1	1	455.45000	MO	10000	0	11K0F3E	100.000	200.000

FCC 601 - LM

Licensee Name: IRWG, TEXAS DPS, STATE OF TEXAS

Call Sign: WQBC290

File Number: 0001756730

Print Date: 09-20-2004

STATION TECHNICAL SPECIFICATIONS

Row	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9
2	1	458.46250	MD	10000	0	11KDF3E	100.000	200.000	09-17-2005
2	1	458.47500	MC	10000	0	11KDF3E	100.000	200.000	09-17-2005
2	1	458.70000	MD	10000	0	11KDF3E	100.000	200.000	09-17-2005
2	1	458.71250	MD	10000	0	11KDF3E	100.000	200.000	09-17-2005
2	1	458.72500	MD	10000	0	11KDF3E	100.000	200.000	09-17-2005
2	1	458.85000	MD	10000	0	11KDF3E	100.000	200.000	09-17-2005

Control Points

Control Address

Pt. No. 1

5805 N. LAMAR BLVD
City AUSTIN

County TRAVIS

State Tx

Telephone Number (512)424-5307

Additional Waivers/Conditions

Antenna structures for land, base and fixed stations authorized by the Wireless Telecommunications Bureau for operation at temporary unspecified locations may be erected without specific prior approval of the Commission where such antenna structures do not exceed a height of 60.96 meters (200 feet) above ground level; provided that the overall height of such antennas more than 6.10 meters (20 feet) above ground, including their supporting structures (whether natural formation or man-made), do not exceed any of the slope ratios set forth in Section 17.7(b). Any antenna to be erected in excess of the foregoing limitations requires prior Commission approval. Licensees seeking such approval should file application for modification of license. In addition, notification to the Federal Aviation Administration is required whenever the antenna will exceed 60.96 meters (200 feet) above the ground and whenever notification is otherwise required by Section 17.7 of the Commission's Rules. Such notification should be given by filing FAA Form 7460-1, Notice of Proposed Construction or Alteration, in duplicate, with the nearest office of the Federal Aviation Administration, which form is available from that office.

FCC 601 - LM

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RADIO STATION AUTHORIZATION

Licensee: IRWG, TEXAS DEPARTMENT OF PUBLIC SAFETY, STATE OF TEXAS

FCC Registration
 Number (FRN): 0001672419

ROBERT PHLICHER
 IRWG, TEXAS DEPARTMENT OF PUBLIC SAFETY,
 STATE OF TEXAS
 5805 N.LAMAR BLVD.
 P.O. BOX PD BOX 4087
 AUSTIN TX 78773

Call Sign WPY1930	File Number
Radio Service PW - Public Safety Pool, Conventional	
Regulatory Status PMRS	
Frequency Coordination Number	

Grant Date 08-19-2003	Effective Date 08-19-2003	Expiration Date 08-19-2013	Print Date 08-29-2003
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STATION TECHNICAL SPECIFICATIONS

Fixed Location Address or Mobile Area of Operation

- Loc. 1 Area of Operation
 EMERGENCY INTEROPERABILITY WITHIN THE STATE OF TEXAS. USAGE FOR
 FLOODS-TORNADOES-HURRICANES-FOREST FIRES-SEVERE ACCIDENTS ETC. SHUT DOWN ON
 COMPLETION
- Loc. 2 Area of Operation
 EMERGENCY INTEROPERABILITY WITHIN THE STATE OF TEXAS. USAGE FOR
 FLOODS-TORNADOES-HURRICANES-FOREST FIRES-SEVERE ACCIDENTS ETC. SHUT DOWN ON
 COMPLETION

Antennas

Loc. No.	Ant. No.	Frequencies (MHZ)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. Az. Meters	Construct. Date
1	1	151.38500	FBT	1	0	20K0F3E	25.000	80.000			
1	1	154.26500	FBT	1	0	20K0F3E	25.000	80.000			
1	1	154.28000	FBT	1	0	20K0F3E	25.000	80.000			
1	1	154.29500	FBT	1	0	20K0F3E	25.000	80.000			
1	1	154.95000	FBT	1	0	20K0F3E	25.000	80.000			
1	1	155.34000	FBT	1	0	20K0F3E	25.000	80.000			
1	1	155.37000	FBT	1	0	20K0F3E	25.000	80.000			
1	1	155.47500	FBT	1	0	20K0F3E	25.000	80.000			
2	1	151.38500	MO	2	0	20K0F3E	100.000	100.000			08-15-2004
2	1	154.26500	MO	10000	0	20K0F3E	100.000	100.000			08-15-2004
2	1	154.29500	MO	10000	0	20K0F3E	100.000	100.000			08-15-2004
2	1	154.95000	MO	10000	0	20K0F3E	100.000	100.000			08-15-2004
2	1	155.34000	MO	10000	0	20K0F3E	100.000	100.000			08-15-2004

Conditions:
 Pursuant to Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. Section 309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. Section 310(d). This license is subject in terms to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended. See 47 U.S.C. Section 706.

Licensee Name: IRWG, TEXAS DEPARTMENT OF PUBLIC SAFETY
 Call Sign: WPY1930 File Number: Print Date: 08-29-2003

Label	Class	Frequency	Power	Mode	Bandwidth	Priority	Notes
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	
On-scene tactical - On-scene tactical	157.3 TX & RX	154.950	100.000	FM	10000	0	

Control Points
 Control Address
 Pt. No. 1 5805 N. LAMAR BLVD
 City AUSTIN
 County TRAVIS
 State TX
 Telephone Number (512)424-5307

Additional Waivers/Conditions
 Antenna structures for land, base and fixed stations authorized by the Wireless Telecommunications Bureau for operation at temporary unspecified locations may be erected without specific prior approval of the Commission where such antenna structures do not exceed a height of 60.96 meters (200 feet) above ground level; provided that the overall height of such antennas more than 6.10 meters (20 feet) above ground, including their supporting structures (whether natural formation or man-made), do not exceed any of the slope ratios set forth in Section 17.7(h). Any antenna to be erected in excess of the foregoing limitations requires prior Commission approval. Licensees seeking such approval should file application for modification of license. In addition, notification to the Federal Aviation Administration is required whenever the antenna will exceed 60.96 meters (200 feet) above the ground and whenever notification is otherwise required by Section 17.7 of the Commission's Rules. Such notification should be given by filing FAA Form 7460-1, Notice of Proposed Construction or Alteration, in duplicate, with the nearest office of the Federal Aviation Administration, which form is available from that office.

154.950 FBT is authorized on a secondary basis in accord with Rule 90.173(h).

Appendix B
Texas Interoperability Channels
 Original Issue 3/15/05

VHF 150 MHz Wideband Interoperability Channels
(Mobile and Portable Configuration)

Receive	Transmit	CTCSS	Label	Use
154.950	154.950	Carrier Squelch ONLY	Texas Law 1	Calling channel, on-site, mobile to mobile
155.370	154.950	127.3 TX only	Texas Law 2	Calling channel, to contact base stations
155.475	155.475	127.3 TX & RX	Texas Law 3	On-scene tactical - command channel
154.280	154.280	127.3 TX & RX	Texas Fire 1	On-scene tactical - command channel
154.265	154.265	127.3 TX & RX	Texas Fire 2	On-scene tactical - command channel
154.295	154.295	127.3 TX & RX	Texas Fire 3	On-scene tactical - command channel
155.340	155.340	127.3 TX & RX	Texas Med 1	On-scene tactical - command channel
151.385	151.385	127.3 TX & RX	Texas Air 2	Air-to-Ground communications with state and federal aircraft ONLY *

*Texas Air 1 is reserved and not available for use in this plan

VHF 150 MHz Narrowband Interoperability Channels (12.5 kHz)
(Mobile and Portable Configuration)

Receive and Transmit	NAC	CTCSS	Label	Use
155.7525	\$061F	156.7 TX & RX	VCALL	Calling Channel
151.1375	\$061F	156.7 TX & RX	VTAC1	On-scene tactical - command channel
154.4525	\$061F	156.7 TX & RX	VTAC2	On-scene tactical - command channel
158.7375	\$061F	156.7 TX & RX	VTAC3	On-scene tactical - command channel
158.4725	\$061F	156.7 TX & RX	VTAC4	On-scene tactical - command channel *

* recommended for air-to-ground with state and federal aircraft only.

**UHF Narrowband Interoperability Channels (12.5 kHz)
(Mobile and Portable Configuration)**

<i>Receive</i>	<i>Transmit</i>	<i>NAC</i>	<i>CTCSS</i>	<i>Direct Label</i>	<i>Repeater Label</i>	<i>Use</i>
453.2125	458.2125	\$061F	156.7 TX & RX		UCALL	Calling Channel (repeater)
453.2125	453.2125	\$061F	156.7 TX & RX	UCALLD		Calling Channel (direct)
453.4625	458.4625	\$061F	156.7 TX & RX		UTAC1	Tactical - Command Channel (repeater)
453.4625	453.4625	\$061F	156.7 TX & RX	UTAC1D		Tactical - Command Channel (direct)
453.7125	458.7125	\$061F	156.7 TX & RX		UTAC2	Tactical - Command Channel (repeater)
453.7125	453.7125	\$061F	156.7 TX & RX	UTAC2D		Tactical - Command Channel (direct)
453.8625	458.8625	\$061F	156.7 TX & RX		UTAC3	Tactical - Command Channel (repeater)
453.8625	453.8625	\$061F	156.7 TX & RX	UTAC3D		Tactical - Command Channel (direct)

**700 MHz Interoperability Channels (12.5 kHz)
(Mobile and Portable Configuration)**

<i>Receive</i>	<i>Transmit</i>	<i>NAC</i>	<i>Direct Label</i>	<i>Repeater Label</i>	<i>Use</i>
794.240625	764.240625	\$061F		7CAL59	Calling Channel, primary (repeater)
794.240625	794.240625	\$061F	7CAL59D		Calling Channel, primary (direct)
804.253125	774.253125	\$061F		7CAL75	Calling Channel, secondary repeater
804.253125	804.253125	\$061F	7CAL75D		Calling Channel, secondary (direct)
794.740625	764.740625	\$061F		7TAC63	Tactical - Command Channel (repeater)
794.740625	794.740625	\$061F	7TAC63D		Tactical - Command Channel (direct)
795.890625	765.890625	\$061F		7MOB72	Tactical - Command Channel (repeater)
795.890625	795.890625	\$061F	7MOB72D		Tactical - Command Channel (direct)
795.990625	765.990625	\$061F		7TAC73	Tactical - Command Channel (repeater)
795.990625	795.990625	\$061F	7TAC73D		Tactical - Command Channel (direct)
804.753125	774.753125	\$061F		7TAC79	Tactical - Command Channel (repeater)
804.753125	804.753125	\$061F	7TAC79D		Tactical - Command Channel (direct)
805.503125	775.503125	\$061F		7MOB88	Tactical - Command Channel (repeater)
805.503125	805.503125	\$061F	7MOB88D		Tactical - Command Channel (direct)
794.240625	764.240625	\$061F		7TAC89	Tactical - Command Channel (repeater)
794.240625	794.240625	\$061F	7TAC89D		Tactical - Command Channel (direct)

**800 NPSPAC Interoperability Channels (25 kHz)*
(Mobile and Portable Configuration)**

Receive	Transmit	NAC	CTCSS	Direct Label	Repeater Label	Use
866.0125	821.0125	\$061F	156.7 TX & RX		8CALL	Calling Channel (repeater)
866.0125	866.0125	\$061F	156.7 TX & RX	8CALLD		Calling Channel (direct)
866.5125	821.5125	\$061F	156.7 TX & RX		8TAC1	Tactical - Command Channel (repeater)
866.5125	866.5125	\$061F	156.7 TX & RX	8TAC1D		Tactical - Command Channel (direct)
867.0125	822.0125	\$061F	156.7 TX & RX		8TAC2	Tactical - Command Channel (repeater)
867.0125	867.0125	\$061F	156.7 TX & RX	8TAC2D		Tactical - Command Channel (direct)
867.5125	822.5125	\$061F	156.7 TX & RX		8TAC3	Tactical - Command Channel (repeater)
867.5125	867.5125	\$061F	156.7 TX & RX	8TAC3D		Tactical - Command Channel (direct)
868.0125	823.0125	\$061F	156.7 TX & RX		8TAC4	Tactical - Command Channel (repeater)
868.0125	868.0125	\$061F	156.7 TX & RX	8TAC4D		Tactical - Command Channel (direct)

*in the future 800 MHz channels will be relocated 15 MHz lower under FCC order

Agency

- City of Waco, Police, EM, Fire, EMS, Public Works/Transportation, Public Safety Communications, Public Health, Health Care, Hazardous Materials, Governmental Admin.
- City of Wink (Staff, Water Dept, EMS, VFD)
- Coke County Sheriff's Dept.
- Cornell Corrections
- County of Coleman
- County of Pecos Texas, Emergency Coordinator
- County/City of Crane
- Crims Chapel Volunteer Fire Department
- Customs & Border Protection
- Cypress Creek Fire Department
- Dale VFD
- Del Rio Police Department
- East Coke County EMS
- Eastland County
- Ector County
- Ector County, All Emergency Responders
- ETMC EMS
- Etoile VFD
- Ewell Volunteer Fire Department
- Falls County EMS, INC.
- Florence Police Department
- Florence VFD, Williamson Co. ESD#7
- Franklin County Sheriff's Office
- Henderson County Sheriff's Department
- Hockley County
- Hopkins County Memorial Hospital (EMS)
- Hopkins County Sheriff's Office
- Hutto Police/ City of Hutto
- Ingleside, TX Fire, EMC
- Jasper County

- Jasper County Commissioner's Precincts (Public Works)
- Jasper County Constables
- Jasper County District Judges
- Jasper County Emergency Management
- Jasper County Judge & Commissioners
- Jasper County Justices of the Peace
- Jasper County Sheriff Department
- Jasper Fire Department
- Jeff Davis County
- Johnson City Police
- Jones County Sheriff's Dept
- Kenny County Sheriff's Dept.

Agency

American Red Cross, Greater Houston Area Chapter
Aransas County Emergency Corp.
Aransas County Sheriff's Office
Ark-Tex Council of Governments
Austin County
Austin County Sheriff
Baxter Volunteer Fire Department

Bellville Hospital District d/b/a Bellville General Hospital
Beverly Hills DPS
Bowie County
Bronte Volunteer Fire Dept.
Brownsboro Police Department
Caney City Police Department
Chandler Police Department
City of Athens Fire and Police
City of Bishop
City of Breckenridge
City of Burnet (Fire, EMS, VFD)
City of Center
City of Coleman
City of Como
City of Diboll Police
City of Eastland
City of Hughes Springs
City of Jasper
City of Littlefield
City of Littlefield
City of Livingston
City of Marble Falls Fire Department
City of Midland
City of Mineola
City of Muleshoe, Texas
City of Newton, City Administrator
City of Plains EMS & VOL FD
City of Portland Fire Department
City of Portland Police Department
City of Robinson
City of Rowlett Fire Rescue
City of Slaton
City of Sundown
City of Taft
City of Uvalde Police Dept.

Kenny County Sheriff's Dept
Jones County Sheriff's Dept
Johnson City Police
Jeff Davis County
Jasper Fire Department
Jasper County Sheriff Department
Jasper County Justices of the Peace
Jasper County Judge & Commissioners
Jasper County Emergency Management
Jasper County District Judges
Jasper County Constables
Jasper County Commissioner's Precincts (Public Works)
Jasper County
Ingleside TX Fire-EMC
Hutto Police City of Hutto
Hopkins County Sheriff's Office
Hopkins County Memorial Hospital (EMS)
Hobbs County
Henderson County Sheriff's Department
Franklin County Sheriff's Office
Florence VFD, Williamson Co ESO#7
Florence Police Department
Falls County EMS, INC.
Ewell Volunteer Fire Department
Etoile VFD
ETMC EMS
Ector County All Emergency Responders
Ector County
Eastland County
East Cole County EMS
Del Rio Police Department
Date VFD
Cypress Creek Fire Department
Customs & Border Protection
Curtis Gravel Volunteer Fire Department
County City of Crane
County of Pecos Texas, Emergency Coordinator
County of Coleman
Cornell Constables
Coke County Sheriff's Dept.
City of Wink (Staff-Water Dept, EMS, VFD)
Health Care, Hazardous Materials, Governmental Affairs
City of Waco, Police, EM, Fire, EMS, Public Works

Agency

Kermit Fire Dept. City of Kermit
Kermit Police Dept. City of Kermit
Kinney County EMS
Kinney County Sheriff's Department
Kleberg County Sheriff's Office
Knox County Sheriff's Office
La Grange Police Department
Lake Rayburn Fire Department
Malakoff Police Department
Manor Police Department
Marble Falls Area EMS, INC.
Martin County, Texas
Mason County Judge
Mason County Sheriff's Office
Maverick County Road & Bridge Dept.
Maverick County Sheriff's Dept.
McMullen County Sheriff's Dept
Menard County EMS
Montgomery County Hospital District
Mount Vernon Police Department
NorthEast Gains County Emergency Service
Office Emergency Management, Austin County
Office of Sheriff Edwards County
Pecos County Sheriff's Office
Polk County Emergency Services Assoc.
Robert Lee Volunteer Fire Dept.
Runnels County
San Patricio County
Scenic Loop VFD
Schuieburg Volunteer Fire Department
Seminole EMS
Seminole Police Department
Smithville Police Department
Smithville Volunteer Fire Department
South Polk County Volunteer Fire Dept.
Southwest Texas Junior College Police Dept
Stanton - City of
Stephens County Sheriff's Office
Sterling County Sheriff's Office

Texarkana Bowie County Central Records & Communications
Texas Baptist Men
Texas Department of Criminal Justice Comm.
Texas Salvation Army
Texas State Guard
The City of Anton, Texas
Tool Police Department

Total: Participants
 Town of Refugio
 Travis County ESD #12 Manor
 Travis County ESD #6
 Trinidad Police Department
 Trinity County / City of Groveton
 Trinity County Sheriff's Office
 Trinity Police Department
 U.S. Bureau of Land Management
 Uvalde Fire Department
 Ward County Constable Pct. 2-3
 Ward County Sheriff's Office
 Weir Volunteer Fire Department
 West Coke County EMS
 Williamson County Sheriff's Office
 Winkler County Sheriff's Office
 Yoakum County

Agency

Kemmit Fire Dept. City of Kemmit
 Kemmit Police Dept. City of Kemmit
 Kinney County EMS
 Kinney County Sheriff's Department
 Kleberg County Sheriff's Office
 Knox County Sheriff's Office
 La Grange Police Department
 Lake Radium Fire Department
 Maitland Police Department
 Manor Police Department
 Marble Falls Area EMS, Inc.
 Martin County, Texas
 Mason County, Texas
 Mason County Sheriff's Office
 Maverick County Sheriff's Office
 Maverick County Sheriff's Office
 McMullen County Sheriff's Dept.
 Menard County EMS
 Montgomery County Hospital District
 Mount Vernon Police Department
 Northeast Gains County Emergency Serv.
 Office Emergency Management, Austin Co.
 Office of Sheriff Edwards County
 Pecos County Sheriff's Office
 Polk County Emergency Services Assoc.
 Robert Lee Volunteer Fire Dept.
 Runnels County
 San Patricio County
 Sentic Loop VFD
 Slatersburg Volunteer Fire Department
 Seminole EMS
 Seminole Police Department
 Smithee Police Department
 Smithee Volunteer Fire Department
 South Polk County Volunteer Fire Dept.
 Southwest Texas Junior College Police Dep.
 Stanton - City of
 Stephens County Sheriff's Office
 Staring County Sheriff's Office
 Tarkenton Bowle County Central Records & Communications
 Texas Baptist Men
 Texas Department of Criminal Justice Comm.
 Texas Salvation Army
 Texas State Guard
 The City of Anton, Texas
 Tull Police Department